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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,527	04/01/2004	Nagesh R. Basavanhally	33-8-5	9904

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EXAMINER	
ROSE, KIESHA L	

ART UNIT	PAPER NUMBER
2822	

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/816,527	BASAVANHALLY ET AL.	
	Examiner	Art Unit	
	Kiesha L. Rose	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 6-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the amendment filed 27 December 2005.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 and 6-14 rejected under 35 U.S.C. 102(e) as being anticipated by Fuhrmann et al. (EPO 1320111).

In re claims 1,4,9,10,13, Fuhrmann discloses a MEM device (Fig. 3) that contains a first surface (4, bottom), second surface (4, top), a plurality of nanostructures (2) made of conductive material disposed on said first surface and second surface and configured to attach said first surface and second surface using attractive forces and in a way such that said nanostructures form at least a first conductive connection between first and second surfaces and (claim 9) configured to interleave with one another and adapted to transfer thermal and electrical energy from first plurality of nanostructures to second plurality of nanostructures. (There is an attractive force because both the nanostructures (can be formed of metallic) and the first and second surfaces are formed

of metal (Page 3, line 20) and an electrical connection is made, which would be an attractive force.)

In re claims 2 and 11, the conductive connection comprises a thermal connection. (Nanostructures can be attached to the substrate, which would be a thermal connection. (Column 2, lines 48-50)

In re claims 3 and 12, the conductive connection comprises an electrical connection. (Column 2, lines 49-53)

In re claims 6-8 and 14, attractive forces comprise attractive intermolecular forces, Van der Waals forces and dipole-dipole forces. (Since the surfaces are formed of a conductive material as well as the nanostructures (can be formed of metallic) then there would be an attractive forces between them. (Column 3, line 20))

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Shin et al. (U.S. Publication 2002/0014667).

In re claim 15, Shin discloses a nanotube device (Fig. 12b) that contains a first surface (12, top), a second surface (12, bottom), a first plurality of nanostructures (20) disposed on one side of an intermediate layer (30, metal) and a second plurality of nanostructures (20) disposed on an opposing side of said intermediate layer, intermediate layer configured to be positioned between first and second surfaces such that first plurality of nanostructures adhere to first surface and second plurality of nanostructures adhere to second surface.

In re claim 16, the first plurality of nanostructures adheres to first surface using attractive forces and second plurality of nanostructures adhere to second surface using attractive forces. (Since the intermediate layer is a metal and the first and second surfaces are metal, then the nanostructures would adhere by attractive forces to the first and second surfaces because of the electrical connection of the metal layers.)

In re claim 17, the first plurality of nanostructures and second plurality of nanostructures form a conductive connection between first and second surfaces. (Since the intermediate layer, which is metal, is formed between the first and second plurality of nanostructures it produces an electrical connection, which is connected to the metal first and second surfaces.)

Response to Arguments

Applicant's arguments with respect to claims 1-4 and 6-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiesha L. Rose whose telephone number is 571-272-1844. The examiner can normally be reached on T-F 8:30-6:00 off Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KLR

Zandra V. Smith
Supervisory Patent Examiner
20 March 2006